

Listed are abstracts from recent papers by IBM authors. Inquiries should be directed to the publications cited.

Abstracts

Security risk assessment in electronic data processing systems, R. H. Courtney, Jr. (SRI New York, NY), *AFIPS Conference Proceedings, 1977 National Computer Conference* 46, 97-104, AFIPS Press, Montvale, NJ (1977). Concern for the safety of a data processing facility and the data within it should result in the selection of such security measures as are appropriate to bringing the risk within tolerable limits at the lowest cost. These security measures should be selected on the basis of the benefit/cost relationships which they afford. The benefit of a security measure is the lessening or elimination of security problems. This risk reduction needs to be quantified in order to measure the benefit of its elimination or diminution. This paper describes a workable procedure for doing this measurement.

Applications of SPARCOM data base concepts to a crime combating environment, R. Ashany (RES Yorktown Heights, NY) *AFIPS Conference Proceedings, 1977 National Computer Conference* 46, 579-593, AFIPS Press, Montvale, NJ (1977). SPARCOM (Sparse Associative Relational Connection Matrix) is a data base system that uses a unique approach to the handling of large amounts of stored data. This approach converts data into large sparse binary matrices that enable one to apply sophisticated sparse matrix techniques to perform data base operations. The operations are performed on the matrices as though the entire matrix were present, but great amounts of storage space are saved, and execution time is significantly reduced by the storage and manipulation of the nonzero values only. This paper presents certain aspects of SPARCOM as used in a crime-combating environment application.

Fault-tolerant modularized arithmetic logic units, T. R. N. Rao (Southern Methodist University, Dallas, TX) and H. J. Reinheimer (FSD Gaithersburg, MD) *AFIPS Conference Proceedings, 1977 National Computer Conference* 46, 703-710, AFIPS Press, Montvale, NJ (1977). Error correcting codes and techniques are becoming increasingly important in the design of digital systems for improving reliability and maintainability and providing fault tolerance. This paper discusses a "combination code" that uses both parity and residue checks. This code can provide a cost-effective error detection and correction method.

Laboratory automation via a VM/370 teleprocessing virtual machine, A. A. Guido and J. P. Considine (RES Yorktown Heights, NY), *AFIPS Conference Proceedings, 1977 National Computer Conference* 46, 865-877, AFIPS Press, Montvale, NJ (1977). There is a mechanism called the Teleprocessing Virtual Machine (TPVM) which has been designed to provide remote intelligent subsystems with the ability to access and utilize the power of the IBM VM/370 environment. This paper describes the TPVM implementation and operation in a laboratory environment. However, the TPVM mechanism is applicable to a much broader spectrum of usage, since it can function as the heart of a computer hierarchical system.

RESQ-A package for solution of generalized queueing networks, C. H. Sauer, M. Reiser, and E. A. MacNair (RES Yorktown Heights, NY) *AFIPS Conference Proceedings, 1977 National Computer Conference* **46**, 977-986. AFIPS Press, Montvale, New Jersey (1977). RESQ (Research Queuing) is a tool for solution of queueing networks. This tool provides user access through both interactive dialogue and a subroutine level interface. The goal of RESQ is to provide facilities for convenient model construction and efficient model solution so that the user can concentrate on the formulation of models. Multiple classes of networks and solution techniques are provided.